RSVP - KO																			
6/30/200	4 pearson with instrumentation, security,	experiment are	ea and neutral	beam		\$66	.86 \$89.23	Labor Ra \$55.96	stes \$52.25	\$64.07	\$94.65								
						\$00	.00 \$09.20			φ04.07	φ94.03	Total							
WBS Number	Description	<\$25000	Materials >\$25000	>\$600000	Total Mat'ls	Eng'r	Physicist	Labor Ho Design	ours Tech	DTS	Shops	Labor Cost	Total w/o Cont		tingency Risk Facto Design Cost WF		Cont	Cont \$	Total w/ Cont
		.42000	1 420000		mat 10		- Injurioret	2 doign			Gilopo		ino conc		Doorgin Cook III	Conoa		oone ¢	
1.4.3	K0PI0 BEAMS																		
1.4.3.1	Project support and Integration					0						\$0					0%	\$0	\$0
1.4.3.1.1	Engr & Design Supervision					0 58	30					\$389,794	\$389,794				16%	\$62,367	\$452,161
1.4.3.1.2 1.4.3.1.3	Physicist Supervision Design					0	5830	3150				\$520,211 \$176,274	\$520,211 \$176,274				16% 16%	\$83,234 \$28,204	\$603,445 \$204,478
1.4.3.1.4	Construction Supervision					0		3130	6250			\$326,563	\$326,563				16%	\$52,250	\$378,813
	·					0						\$0	\$0				0%	\$0	\$0
1.4.3.2 1.4.3.2.1	Primary Beam B1,B2,B5 Removal					0											0%		\$0 \$0
1.4.3.2.1.1	Remove equipment					0			760	120		\$47,398	\$47,398	1 2	2 4 6 1	4	16%	\$7,584	\$54,982
1.4.3.2.1.2	Remove power & tray					0				80		\$5,126	\$5,126	1 2	2 4 6 1	4	16%	\$820	\$5,946
1.4.3.2.1.3	Modify shielding	***			\$	0			222	2160		\$138,391	\$138,391		2 4 6 1	4	16%	\$22,143	\$160,534
1.4.3.2.1.4	Rad disposal	\$60,000			\$60,00	0			300			\$15,675	\$75,675				0%		\$75,675
1.4.3.2.2	C1,C3,C7 Removal					0											0%		\$0 \$0
	Remove equipment					0			168			\$8,778	\$8,778			4		\$1,229	\$10,007
	Remove power & tray					0				80		\$5,126	\$5,126				14%	\$718	\$5,843
	Modify shielding Rad disposal	\$20,000			\$20,00	0			100	1440		\$92,261 \$5,225	\$92,261 \$25,225		2 4 4 1	4	14%	\$12,917	\$105,177 \$25,225
	rad disposal	Ψ20,000			Ψ20,00	0			100			ψ3,223 \$0	Ψ20,220 \$0				0%		Ψ23,223 \$0
1.4.3.2.3	Additional Shielding					0											0%		\$0
	Floor blocks (200 tons)		\$30,00	0	\$30,00	0	60					\$4,012	\$34,012	2 2	2 4 4 2	2	18%	\$6,122	\$40,134
1.4.3.2.4	Transport Magnets (9)					0											0%		\$0 \$0
1.1.0.2.1	Refurbish 8Q32	\$1,000			\$1,00	0	10		160	12	10	\$10,744	\$11,744	2 2	2 4 4 2	2	18%	\$2,114	\$13,858
	Refurbish 3-5Q36	\$3,000			\$3,00	0	30		480	24	30	\$31,463	\$34,463	2 2	2 4 4 2	2	18%	\$6,203	\$40,666
	Refurbish 4-Trims	\$2,000			\$2,00		20		320	12	20	\$20,719	\$22,719				18%	\$4,089	\$26,808
	Refurbish N3Q48	\$1,000			\$1,00	0	10		160	12	10	\$10,744	\$11,744	2 2	2 4 4 2	2	18%	\$2,114	\$13,858 \$0
1.4.3.2.5	Power Supplies					0											0%		\$0
	Modify PSs for new controls (9)		\$75,00	0	\$75,00	0 1	00	80	5400			\$293,313	\$368,313	4 4	4 4 2	8	36%	\$132,593	\$500,905
1.4.3.2.6	Electrical Modifications					0											0%		\$0 \$0
1.4.3.2.0	Modify Royals (4)		\$60,00	0	\$60,00	0				80		\$5,126	\$65,126	4 2	8 10 2	8	44%	\$28,655	\$93,781
	meany respute (1)		400,00		\$	0						\$0	\$0 \$0				0%	4 20,000	\$0
1.4.3.2.7	Instrumentation/Controls					0						\$0					0%	\$0	\$0
1.4.3.2.7.1	project support					0 2	40 120	80				\$31,231	\$31,231				0%	\$0	\$31,231
1.4.0.2.7.1	installation supervision					0	120		440			\$22,990	\$22,990				0%		\$22,990
	•					0						\$0	\$0				0%		\$0
1.4.3.2.7.2	B Transport Devices																0%		\$0
						0											0.0%		<u></u>
1.4.3.2.7.2.1	EPM's/Plunging SWIC's (4)	240000		+	\$240,00	0 2	40 80	80	480			\$52,742	\$292,742	3 2	2 10 4 2	8	32%	\$93,677	\$386,419
-	Includes device & electronics				, ,,,,,							, ,	, , ,					, , .	, , , , ,
1 1 0 0 7 0 0						0			0.40			\$0	\$0				0%	\$0	\$0
1.4.3.2.7.2.2	Loss Monitors Long LM's	6000			\$6,00		20		240			\$20,563	\$20,563 \$6,000				16% 16%	\$3,290 \$960	\$23,853 \$6,960
	LM's, IC's(4 in picture frame config.)	5000		+	\$5,00 \$5,00								\$5,000 \$5,000				16%	\$800	\$5,800
	1 Detector per magnet	24000			\$24,00	0							\$24,000	1 2	2 1 2	8	14%	\$3,360	\$27,360
	HV Bias	7500			\$7,50								\$7,500				14%	\$1,050	\$8,550
	Electronics Special chassis	8000 10000			\$8,00 \$10,00								\$8,000 \$10,000				14% 16%	\$1,120	\$9,120 \$11,600
	Special Chassis	10000			\$10,00 \$	0							\$10,000 \$0	1 2	4 1 2	8	0%	\$1,600	\$11,600 \$0
1.4.3.2.7.2.3	New B Target Devices					0 2	40 40	80	480		40	\$52,958	\$52,958	1 2	2 10 4 2	8	28%	\$14,828	\$67,787
1.4.3.2.7.2.3.1	B-SEC				\$	0							\$0				0%	\$0	\$0
	Device, with vacuum pump. Electronics (I/V, I/F, HV Bias, & counte	20000 6000			\$20,00 \$6,00								\$20,000 \$6,000				24% 28%	\$4,800 \$1,680	\$24,800 \$7,680
	Translation Table & Controls	10000			\$6,00 \$10,00								\$6,000 \$10,000				28% 16%	\$1,680	\$7,680 \$11,600
						0											0%		\$0
1.4.3.2.7.2.3.2	Target Temperature Monitor	5000			\$5,00	0							\$5,000	1 2	2 4 1 2	8	16%	\$800	\$5,800
<u> </u>					\$	0						\$0	\$0				0%	\$0	\$0

1 / 3 2 7 2 2 2	P Target Flag					<u> </u>						00/_		
1.4.3.2.7.2.3.3	B Target Flag Mount, Lamps	2000	\$2,000					\$U \$0	\$2,000	1 2	2 1 2	8 14%	\$280	\$2,280
	Rad-Hard video camera	25000	\$25,000					φ0 \$0	\$2,000	1 2	8 1 2	8 20%	\$5,000	\$30,000
	Camera Lens, ND Filter, driver.	6000	\$6,000					\$0 \$0	\$6,000	1 2	2 1 2	8 14%	\$840	\$6,840
	Carriera Leris, ND 1 inter, driver.	0000	Ψ0,000					ΨΟ	ψ0,000	1 2	2 1 2	0 1470	ψοτο	ΨΟ,Ο-ΤΟ
1.4.3.2.7.2.3.4	90 deg telescope		\$0					\$0	\$0			0%		\$0
	90 Target Tel (Scint/PMT assy & mour	6000	\$6,000					\$0	\$6,000	1 2	4 1 2	8 16%	\$960	\$6,960
	Tel Elec & Bias (amps, discr counter)	12500	\$12,500					\$0	\$12,500	1 2	4 1 2	8 16%	\$2,000	\$14,500
			\$0					\$0	\$0			0%		\$0
1.4.3.2.7.2.3.5	Loss Monitors		\$0					\$0	\$0			0%		\$0
	IC's (4 in picture frame config.)	5000	\$5,000					\$0	\$5,000	1 2	2 1 2	8 14%	\$700	\$5,700
	LM VME FE electronics, Controls I/F	5000	\$5,000					\$0	\$5,000	1 2	2 1 2	8 14%	\$700	\$5,700
	HV Bias	2500	\$2,500					\$0	\$2,500	1 2	2 1 2	8 14%	\$350	\$2,850
	Interface to machine protect system	5000	\$5,000					\$0	\$5,000	1 2	4 1 2	8 16%	\$800	\$5,800
4 4 0 0 7 0 0 0	Oaklas and Basks		0.0					0.0	60			00/		0.0
1.4.3.2.7.2.3.6	Cables and Racks Cables, connectors, patch panels	3000	\$3,000			240		\$12,540	\$15,540	1 2	4 2 2	8 18%	\$2,797	\$18,337
	All Rack H/W and misc. items	2000	\$2,000			240		φ12,5 4 0	\$2,000	1 2	2 1 2	8 14%	\$2,797 \$280	\$2,280
	All Rack H/W and Hilsc. Items	2000	\$2,000					φ0 © 0	\$2,000	1 2	2 1 2	0 1470	φ260	φ 2,260
			\$0					\$0 \$0	\$0			0%		\$0
1.4.3.2.7.2.4	B Target Instrumentation Station		\$0 \$0	160		320		\$27,418	\$27,418	1 2	2 1 2	8 14%	\$3,838	\$31,256
1.4.0.2.7.2.4	Racks (5) installed at Instru Elec. Supp	7500	\$7,500	100		020		Ψ27,410 \$0	\$7,500	1 2	2 1 2	8 14%	\$1,050	\$8,550
	racite (e) inclaired at meta Lice. Capi	7.000	Ψ1,000					-	ψ1,000				ψ1,000	ψ0,000
1.4.3.2.8	Environmental Enclosures		\$0					\$0	\$0			0%		\$0
	New Instru enclosed room with AC	15000	\$15,000					\$0	\$15,000	1 2	4 1 2	8 16%	\$2,400	\$17,400
	Control/Instru enclosure	\$10,000	\$10,000				140	\$8,970	\$18,970	4 2	4 4 2	2 22%	\$4,173	\$23,143
			\$0					\$0	\$0			0%	\$0	\$0
1.4.3.2.9	Vacuum		\$0					\$0	\$0			0%		\$0
	Pipe, flanges, bellows, valves	\$42,000	\$42,000	80		120	120	\$22,977	\$64,977	3 2	8 4 2	2 24%	\$15,594	\$80,571
	Vacuum pumps (2)	\$48,000	\$48,000	40				\$2,674	\$50,674	1 2	4 4 2	2 16%	\$8,108	\$58,782
	Monitors	\$5,000	\$5,000	8		80		\$4,715	\$9,715	1 2	4 4 2	2 16%	\$1,554	\$11,269
			\$0					\$0	\$0			0%		\$0
1.4.3.2.10	Installation		\$0					\$0	\$0			0%		\$0
	Install magnets (9)	\$18,000	\$18,000	36		2448	1008	\$194,898	\$212,898	3 2	8 4 2	2 24%	\$51,095	\$263,993
	Survey beam components		\$0			240		\$12,540	\$12,540	1 2	4 4 1	2 12%	\$1,505	\$14,045
	Install vacuum		\$0			160	80		\$15,932	1 2	8 4 1	2 16%	\$2,549	\$18,481
	Install victualic & manifolds	\$15,500	\$15,500			120	90	\$12,036	\$27,536	1 2	8 4 1	2 16%	\$4,406	\$31,942
	Install power & lights	\$5,000	\$5,000				320	\$20,502	\$25,502	1 2	4 4 2	2 16%	\$4,080	\$29,583
	Clean cave & paint	\$1,000	\$1,000			80	80	\$9,306	\$10,306	1 2	4 4 2	2 16%	\$1,649	\$11,954
	Close roof		\$0_ <u></u>				1440	\$92,261	\$92,261	3 2	4 4 1	2 16%	\$14,762	\$107,023
	Fire Detection	\$5,000	\$5,000				160	\$10,251	\$15,251	1 2	4 4 2	2 16%	\$2,440	\$17,691
	Cave dehumidification	\$15,000	\$15,000				40	\$2,563	\$17,563	4 2	4 4 2	2 22%	\$3,864	\$21,427
	Shielding seismic restraints	\$15,000	\$15,000				240	\$15,377	\$30,377	6 2	4 4 2	2 26%	\$7,898	\$38,275
1.4.3.3	Common Equipment/Facilities		\$0					 ●0	\$0 ©0			0%		Φ0
1.4.3.3	Magnet Interlock System	\$35,214	\$35,214	72	96	608		\$41,954	\$77,168	2 2	8 4 2	2 22%	\$16,977	\$94,145
	Bldg 912 Facility Upgrade	\$40,000	\$40,000	12	90	000		φ41,954 ©∩	\$40,000	3 2	8 4 2	2 24%	\$9,600	\$49,600
	Blug 912 I acility Opgrade	Ψ-0,000	Ψ+0,000					ΨΟ	Ψ+0,000	3 2	0 7 2	2 24/0	ψ9,000	Ψ+3,000
1.4.3.4	B-line Security System modifications		\$0					\$ 0	\$0			0%		\$0
1.1.0.1	project support		\$0	0	0 0	0	0	\$0	\$0	2 2	3 1 1	2 10%		\$0 W
	installation supervision		\$0			600		\$31,350	\$31,350	2 2	3 1 1	2 10%	\$3,135	\$34,485
			\$0					\$0	, , , , ,			0%	\$0	\$0
1.4.3.4.1	PLC Systems		\$0					\$0	_			0%		\$0 P
	Programming	\$0	\$0	320	0	0	0 (\$21,395	\$21,395	2 2	3 2 2	8 19%	\$4,065	\$25,460
	PLC & Racks	\$8,000	\$8,000	32	40	240	16 (\$25,943	2 2	3 2 2	4 15%	\$3,891	\$29,834
	I/O modules	\$6,300	\$6,300	16	0	40	0 (-	\$9,460	2 2	3 2 2	4 15%	\$1,419	\$10,879
	R/IO Blocks	\$8,000	\$8,000		0	40	0 (\$10,090	2 2	3 2 2	4 15%	\$1,514	\$11,604
	UPS and Phoenix connectors	\$4,000	\$4,000		0	40	40 (\$4,653	\$8,653	2 2	3 2 2	4 15%	\$1,298	\$9,951
	Fiber converters (R/IO & DH+ comm)(\$4,800	\$4,800	16	0	40	0 (\$3,160	\$7,960	2 2	3 2 2	4 15%	\$1,194	\$9,154
			\$0					\$0				0%		\$0
1.4.3.4.2	Gates (Incl. 3 gates)		\$0					\$0				0%		\$0
	Gates	\$0 \$0	\$0	0		0	0	\$0	\$0	1 2	3 2 2	4 13%		\$0 TI
	Gates Boxes	\$1,800		40	40	240	0	\$17,453	\$17,453	1 2	3 2 1	4 11%		
	Limit switches (10)	\$600	\$600		0	24	0	\$1,254	\$1,854	1 2	3 2 1	4 11%	\$204	\$2,058
	Electric strikes (2)	\$240	\$240		0	24	0	\$1,254	\$1,494	1 2	3 2 1	4 11%	\$164	\$1,658
	Card Readers (2)	\$400 \$0	\$400	8	0	40	0 (7-,	\$3,025	1 2	3 2 1	4 11%	\$333	\$3,358
	Key Tree & Iris Scanner	\$9,000	\$9,000			40	40	\$4,653				0%		\$13,653
4.40.40	Oablas					00	40	2 00 7 10						00 740
1.4.3.4.3	Cables 19/2 (2000#)	¢4.500	\$0			80	40 (_ ' '	04 500	2 2	2 0 0	0%	\$0	\$6,743
	Cables 18/c (3000ft) Cables 12/c (3000ft)	\$1,500 \$1,500	\$1,500 \$1,500	0		0	(\$0	\$1,500 \$1,500	2 2	3 2 2	4 15% 4 11%	\$225	\$1,725
		\$1.5000	\$1.500	(1)	0	0			\$1,500	1 2	3 2 1	4 11%	\$165	\$1,665

	Cables 4/c (3000ft) Crash cables (1000ft)	\$1,050 \$750		\$1,050 \$750	0		0				\$U \$0	\$1,050 \$750		2 3 2 3			11% 11%	\$116 \$83	\$1,166 \$833
	DH+ Comm cables (1000ft)	\$750 \$450		\$750_ \$450	0		0				\$0 \$0	\$750 \$450		2 3			11%	\$50	
	BTT COMMIT COSICS (TOCOM)	Ψ100	ΨΟ	\$0							\$0	Ψίου				-	0%	\$0	\$0
1.4.3.4.4	CATV																<u>-</u>		
	Bobcat switch 16*2 mux (2)	\$1,200		\$1,200	40		24	80			\$8,197	\$9,397					.0,0	\$1,222	
	Lee Data 1*1 Fiber Optics Transmitter			\$500				24			\$1,254	\$1,754		2 3			13%	\$228	\$1,982
	Lee Data 1*1 Fiber Optics Receiver (2 Digital Cameras (6)	\$500 \$1,800		\$500 \$1,800				24 40			\$1,254 \$2,090	\$1,754 \$3,890		2 3 2 3			13% 13%	\$228 \$506	\$1,982 \$4,396
	Digital Cameras (6)	\$1,000	Φ0	Φ1,000 \$0				40	U		\$2,090 \$0	\$3, 690	, ,	2 3	2 2	4	13%	φουσ 0.02	\$4,390 \$0
1.4.3.4.5	Chipmunks										Ų O						_		W
	Chipmunks (0 units)	\$0		\$0				0	0		\$0		1 :	2 3	2 2		13%		\$0
	VME SIS Scaler board	\$0		\$0				0	0		\$0			2 3			13%		\$0
	Weather proof enclusure	\$0		<u> </u>				0	•		\$0			2 3			13%		\$0 <u> </u>
	Coaxial cables (1000 ft)	\$0	\$0	\$0 \$0				0	0		\$U \$0		1 1	2 3	2 2	4	13%		\$0 \$0
1.4.3.4.6	Crash, Sweep & Alarms			ΨU_							ΨΟ								\$0_ <u></u>
1. 1.0. 1.0	Check station boxes	\$300		\$300	80		40	80	0		\$11,767	\$12,067	1 :	2 3	2 2	4	13%	\$1,569	\$13,636
	Crash Actuators	\$500		\$500				80	0		\$4,180	\$4,680	1 :	2 3	2 2	4	13%	\$608	\$5,288
	Crash Stations and Alarms	\$1,500		\$1,500				160	0		\$8,360	\$9,860	1 :	2 3	2 2	4	13%	\$1,282	\$11,142
4.40.5	Newton Lineau			\$0							\$0						0%		\$0
1.4.3.5 1.4.3.5.1	Neutral beam Target Station			\$0 \$0							\$U \$0						0%		\$U \$0
1.4.3.3.1	Installation			\$0 \$0							\$0 \$0						0%		\$0 \$0
	motana a cri			\$0							\$0						0%		\$0
1.4.3.5.2	D1 sweeper	\$12,000		\$111,225	40		120	680			\$44,920	\$156,145		2 4	4 2	2	26%	\$40,598	\$196,742
	Hookup	\$4,000		\$4,000	8			272	112		\$21,923	\$25,923					15%	\$3,888	
1.4.3.5.3	D2 sweeper	\$7,000		\$209,250	40		120	160	440		\$17,750	\$227,000		2 4	4 2			\$59,020	
1 1 2 5 1	Hookup	\$4,000		\$4,000	8		100	272	112		\$21,923	\$25,923		2 3			15%	\$3,888	\$29,811
1.4.3.5.4	D3 sweeper Hookup	\$7,000 \$4,000		\$478,500 \$4,000	40 8		120	272	112		\$9,390 \$21,923	\$487,890 \$25,923		2 4	4 2 2 2		26% 15%	\$126,851 \$3,888	\$614,741 \$29,811
1.4.3.5.5	Collimator	\$4,000		\$4,000	160		320	212	112		\$28,605	\$28,605			4 2		26%	\$7,437	\$36,042
1.4.3.3.3	Vacuum box		\$40,000	\$40,000	100		320				Ψ20,003 \$0	\$40,000		2 4	4 2		26%	\$10,400	
	Heavy met liner		\$76,000	\$76,000							\$0	\$76,000		2 4	4 2		26%	\$19,760	\$95,760
	Steel shielding		\$650,000	\$650,000							\$0	\$650,000		2 4	4 2		26%	\$169,000	\$819,000
	Installation			\$0							\$0		6	2 4	4 2	2	26%		\$0
1 1 2 2		47 000	4000 750	\$0 \$0			100				\$0	\$0					0%	\$0	\$0
1.4.3.6	D4 sweeper Installation	\$7,000	\$338,750	\$345,750	40		120				\$9,390	\$355,140	6 :	2 4	4 2	2	26%	\$92,336	\$447,476
	Hoookup			\$0 \$0							\$0 \$0						0%		\$0 \$0
	Поокар			\$0							\$0						0%		\$0
1.4.3.7	Power supplies			\$0							\$0						0%		\$0
	Modify PSs for new controls (6)	\$45,000		\$45,000	80		48	3240			\$177,325	\$222,325	5 4	4 4	4 2	8	36%	\$80,037	\$302,362
4.4.0.0				\$0							\$0						0%		\$0 ***
1.4.3.8	Electrical modifications Modify Royals (4)		\$60,000	\$60,000							\$U \$0	\$60,000	4	1 1	4 2	Ω	36%	\$21,600	\$81,600
	Woully Royals (4)		\$60,000	\$00,000_ \$0							\$0 \$0	\$60,000	4 '	4 4	4 2	. 0	0%	φ21,000 S0	φο1,000 Ω
1.4.3.9	Experimental area			\$0							\$0 \$0						0%		\$0
	Detector pit		\$266,000	\$266,000							\$0	\$266,000	4 4	4 4	4 2	8	36%	\$95,760	\$361,760
				\$0							\$0)				0%		\$0
	shielding			\$0							\$0						0%		\$0
	power and tray			\$0 \$0							\$U \$0						0%		\$U \$0
	power and tray			\$0 \$0							\$0 \$0						0%		\$0 \$0
	counting house			\$0							\$0						0%		\$0
				\$0							\$0)				0%		\$0
	Fast electronics area			<u> </u>							\$0						0%		\$0
	Labor Hours			\$0	8272	6070	4558	26986	8010	310							0%		\$0
	FTE				4.7	3.5		15.4									0 70		
						0.0											_		
	TOTALS - DIRECT	\$877,754	\$2,416,725	\$0 \$834,500	\$553,066	\$541,626	\$255,066	\$1,410,019	\$513,201	\$29,342	\$3,302,318	\$6,574,602	2		'		23%	\$1,513,281	\$8,090,826
			40.4504		06 :=0:	00 :=:	20 :=2:	06 (=6)	46.5=61	40.0==:									\$0
	indirect %	24.98%	13.19%		39.47%	39.47%	39.47%	39.47%	12.05%	12.05%									0.00%
	TOTAL	\$ 1,096,997	\$ 2,735,576	\$ 3 832 573	\$ 771.378	\$ 755 423	\$ 355 748	1 966 597	\$ 575 041	\$ 32.877	\$ 4,457,064	\$ 8 289 637					23%	\$1,908,032	\$10,197,669
	IVIAL	Ψ 1,000,007	2,100,010	Ψ 0,002,013	Ψ 111,010	₩ 1 00, 1 20	φ 000,7 40 φ	, 1,000,001	Ψ 010,0+1	Ψ 02,011	Ψ - ,01,00-	¥ 0,200,001					2070 .	1,000,002	ψ10,101,000
																			